

# MONTHLY NOTICES

OF THE

## ROYAL ASTRONOMICAL SOCIETY.

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No. 3

W. H. MAW, Esq., PRESIDENT, in the Chair.

Rodney Boyce, Soudan Survey Department, c/o Royal Colonial Institute, Northumberland Avenue, London, S.W. ;

Arthur Cleminson, Deputy Commissioner of Lands, Lagos, West Africa ;

George Innes, M.P.S., Olive Bank, Liberton Brae, Edinburgh ;

Arthur Kent Lucke, Suez Canal Company's Service, Transit Department, Ismailia, Egypt ; and

George Street, M.A., Merton House, Southwick, Sussex,

were balloted for and duly elected Fellows of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended :—

Edward George Bloomfield Barlow, Ditton Lodge, Stourwood Avenue, Bournemouth (proposed by Col. E. E. Markwick) ;

Lieut. F. G. Cooper, R.N.R., H.M.S. *Ocean*, 131 Sutton Court, Chiswick, W. (proposed by E. W. Owens) ; and

Edward Power, F.S.A., F.G.S., 16 Southwell Gardens, S.W., and Watership, Newbury, Berks (proposed by W. S. Franks).

Fifty-one presents were announced as having been received since the last meeting, including, amongst others :—

W. H. Pickering, Lunar and Hawaiian physical features compared, presented by the author ; 20 charts of the Astrographic Chart of the heavens, presented by the Royal Observatory, Greenwich ; Engraving from portrait of Sir William Huggins, painted for the Royal Society, presented by the subscribers to the Huggins Portrait Fund.

*The Perturbations of Halley's Comet.* By P. H. Cowell and A. C. D. Crommelin.

Shortly after the December meeting we decided to undertake jointly the computation of the perturbations of Halley's Comet. Wishing to ascertain as rapidly as possible whether Pontécoulant's date of the next perihelion passage (1910 May 23) was approximately correct, we made a preliminary computation of the Jupiter perturbations, dividing the comet's orbit into eighty portions, and closely following Pontécoulant's method. We introduced, however, two modifications, which we think are improvements:—

(1) Pontécoulant has made his computation needlessly long by the retention of a number of meaningless and superfluous figures; thus he determines the perturbing forces  $X$ ,  $Y$  parallel to the principal axes of the ellipse to two places of decimals, implying, as a rule, three significant figures; but the product of these, by the factor reducing the perturbation to seconds of arc, is given to six significant figures, of which only three can be trusted. We have restricted ourselves to the reliable figures, which involves no loss of accuracy.

(2) Pontécoulant performs the multiplication by these factors separately for each element of the orbit. We have first taken the sum of the components and multiplied by the reducing factor once for all at the end, thus saving much labour.

We are now undertaking a more accurate investigation of the perturbations, dividing the orbit into 180 portions, and including the perturbing effect of Venus, the Earth, and Neptune, which Pontécoulant did not consider. We therefore deem it unnecessary to do more at present than give the two main results of our preliminary work, which are as follows:—

(1) 1910 May is the correct date within a month for the next perihelion passage. Our actual result is a fortnight earlier than Pontécoulant's, but we lay no stress on the difference.

(2) Our computations confirm the suspicion expressed in December, that Pontécoulant's value of the eccentricity in 1910 is notably in error. In fact, we make the perihelion distance appreciably the same as at the last return (0.59), whereas he increased it to 0.68. This change is of some importance, as it would considerably affect the geocentric path of the comet at the next return, and would also considerably modify the point at which the meteors accompanying the comet would intersect the Earth's orbit.

Result (1) indicates that Ångström's curve fails utterly for the next return, and throws much doubt on the reality of his two inequalities. Possibly many of the earlier returns of the comet have been wrongly identified by Hind and Ångström, and the latter's curves may thus be erroneous.